

Vlaming's Manuscript, nos. 165, 166. This fish is called Sturgeon of Banda, and has the fork of the snout not more largely developed than in *Trigla lyra*. Like *P. gigas*, it grows to a considerable size.

A third species is mentioned by Cuvier in few words: "Ainsi l'on doit croire qu'il y a dans la mer des Indes une espèce de ce genre différente de la nôtre." This third species of Cuvier is perhaps *P. orientalis*, or my new *P. Rieffeli*.

GEOLOGICAL SOCIETY.

December 14, 1859.—Prof. J. Phillips, President, in the Chair.

The following communications were read:—

1. "On some Remains of *Polyptychodon* from Dorking." By Prof. Owen, F.R.S., F.G.S.

Referring to the genus of Saurians which he had founded in 1841 on certain large detached teeth from the Cretaceous beds of Kent and Sussex, and which genus, in reference to the many-ridged or folded character of the enamel of those teeth, he had proposed to call *Polyptychodon*, Prof. Owen noticed the successive discoveries of portions of jaws, one showing the thecodont implantation of those teeth, which, with the shape and proportions of the teeth, led him to suspect the crocodilian affinities of *Polyptychodon*; and the subsequent discovery of bones in a Lower Greensand quarry at Hythe, which, on the hypothesis of their having belonged to *Polyptychodon*, had led him to suspect that the genus conformed to the Plesiosauroid type.

The fossils now exhibited by Mr. G. Cubitt of Denbies, consisted of part of the cranium (showing a large foramen parietale), fragments of the upper and lower jaws and teeth, of the *Polyptychodon interruptus*, from the Lower Chalk of Dorking, and afforded further evidence of the plesiosauroid affinities of the genus. Professor Owen remarked that in a collection of fossils from the Upper Greensand near Cambridge, now in the Woodwardian Museum, and in another collection of fossils from the Greensand beds near Kursk in Russia, submitted to the Professor's examination by Col. Kiprianoff, there are teeth of *Polyptychodon*, associated with plesiosauroid vertebræ of the same proportional magnitude, and with portions of large limb-bones, without medullary cavity, and of plesiosauroid shape.

Thus the evidence at present obtained respecting this huge, but hitherto problematical, carnivorous Saurian of the Cretaceous period seemed to prove it to be a marine one, more closely adhering to the prevailing type of the Sea-lizards of the great mesozoic epoch, then drawing to its close, than to the *Mosasaurus* of the Upper Chalk, which, by its vertebral, palatal, and dental characters, seemed to foreshadow the Saurian type to follow.

Prof. Owen exhibited also drawings of specimens in the Woodwardian Museum and in the Collection of Mr. W. Harris, of Charing, which show the mode and degree of use or abrasion to which the teeth of *Polyptychodon* had been subject.

2. "On some Fossils from near Bahia, South America." By S. Allport, Esq. Communicated by Prof. Morris, F.G.S.

The south-west point of the hill on which the Fort of Montserrat is built, in Bahia Bay, exhibits a section of alternating beds of conglomerate, sandstone, and shale; in the last Mr. Allport discovered a large Dinosaurian dorsal vertebra, not unlike that of *Megalosaurus*, several Crocodilian teeth, and numerous large scales of *Lepidotus*, together with a few Molluscs (*Paludina*, *Unio*, &c.), some *Entomostraca*, and Lignite. Two miles from Montserrat, in a N.E. direction, is the Plantaforma, another hill of the same formation, but loftier. The shales here also yielded similar fossils.

These fossiliferous shales and conglomerates dip to the N.W. towards the Bay, and appear to overlie a similarly inclined whitish sandstone, which rests against the gneissose hills ranging north-eastwardly from the point of St. Antonio.

3. "On a Terrestrial Mollusc, a Chilognathous Myriapod, and some new species of Reptiles, from the Coal-formation of Nova Scotia." By J. W. Dawson, LL.D., F.G.S. &c.

On revisiting the South Joggins in the past summer, Dr. Dawson had the opportunity of examining the interior of another erect tree in the same bed which had afforded the fossil stump from which the remains of *Dendroperon Acadianum* and other terrestrial animals were obtained in 1851 by Sir C. Lyell and himself. This second trunk was about 15 inches in diameter, and was much more richly stored with animal remains than that previously met with. There were here numerous specimens of the land-shell found in the tree previously discovered in this bed,—several individuals of an articulated animal, probably a Myriapod,—portions of two skeletons of *Dendroperon*,—and seven small skeletons belonging to another Reptilian genus, and probably to three species.

The bottom of the trunk was floored with a thin layer of carbonized bark. On this was a bed of fragments of mineral charcoal (having Sigillaroid cell-structure), an inch thick, with a few Reptilian bones and a *Sternbergia*-cast. Above this, the trunk was occupied, to a height of about 6 inches, with a hard black laminated material, consisting of fine sand and carbonized vegetable matter, cemented by carbonate of lime. In this occurred most of the animal remains, with coprolites, and with leaves of *Noeggerathia* (*Poacites*), *Carpolithes*, and *Calamites*, also many small pieces of mineral charcoal showing the structures of *Lepidodendron*, *Stigmara*, and the leaf-stalks of Ferns. The upper part of this carbonaceous mass alternated with fine grey sandstone, which filled the remainder of the trunk as far as seen. The author remarked that this tree, like other erect *Sigillariae* in this section, became hollow by decay, after having been more or less buried in sediment; but that, unlike most others, it remained hollow for some time in the soil of a forest, receiving small quantities of earthy and vegetable matter, falling into it, or washed in by rains. In this state it was probably a place of residence for the snails and myriapods and a trap and tomb for the reptiles; though

the presence of coprolitic matter would seem to show that in some instances at least the latter could exist for a time in their underground prison. The occurrence of so many skeletons, with a hundred or more specimens of land-snails and myriapods, in a cylinder only 15 inches in diameter proves that these creatures were by no means rare in the coal-forests; and the conditions of the tree with its air-breathing inhabitants implies that the Sigillarian forests were not so low and wet as we are apt to imagine.

The little land-shell, specimens of which with the mouth entire have now occurred to the author, is named by him *Pupa vetusta*. Dr. Dawson found entire shells of *Physa heterostropha* in the stomach of *Menobranthus lateralis*, and hence he supposes that the *Pupæ* may have been the food of the little reptiles the remains of which are associated with them.

Two examples of *Spirorbis carbonarius* also occurred; these may have been drifted into the hollow trunk whilst they were adherent to vegetable fragments. The Myriapod is named *Xylobius Sigillariæ*, and is regarded as being allied to *Iulus*.

The reptilian bones, scutes, and teeth referable to *Dendroterpeton Acadianum* bear out the supposition of its Labyrinthodont affinities. Those of the new genus, *Hylonomus*, established by Dr. Dawson on the other reptilian remains, indicate a type remote from *Archeōsaurus* and *Labyrinthodon*, but in many respects approaching the Lacertians. The three species determined by the author are named *H. Lyellii*, *H. acidentatus*, and *H. Wymani*.

4. "On the Occurrence of Footsteps of *Chirotherium* in the Upper Keuper of Warwickshire." By the Rev. P. B. Brodie, F.G.S.

True Chirotherian footsteps do not appear to have been hitherto met with in the Keuper of Warwickshire; but a specimen of Keuper sandstone showing the casts of a fore and a hind foot of *Chirotherium* was lately turned up by the plough at Whitley Green near Henley-in-Arden. The breadth of the fore-foot is about 2 inches; the hind-foot is $4\frac{1}{2}$ inches across. As the New Red sandstone of Cheshire, so well known for its fine Chirotherian foot-tracts, certainly belongs to the upper part of the New Red series, it may now be further correlated with the Upper Keuper of Warwickshire, the latter having yielded true Chirotherian foot-prints.

MISCELLANEOUS.

On the Mud-Fish of the Nile (*Lepidosiren annectens?*).

By Dr. J. E. GRAY, F.R.S. &c.

THE British Museum has just received from M. Parzudaki of Paris two specimens of *Lepidosiren* from the "embouchure du Nil." They are much larger than any I have seen from West Africa. The largest is much bigger than the specimen which escaped from the small tank into the basin warmed with hot-water pipes in the Crystal Palace. One, in its dry, unstuffed state, is 32, and